

CHIEF ENGINEER'S OFFICE
STANDARDS PROGRAM

LANL Engineering & Construction Standards & Specifications

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Facility and Waste Operations Division (FWO)

Chief Engineer's Office

LA-UR-03-3240



The LANL Engineering Standards are in Three Manuals:

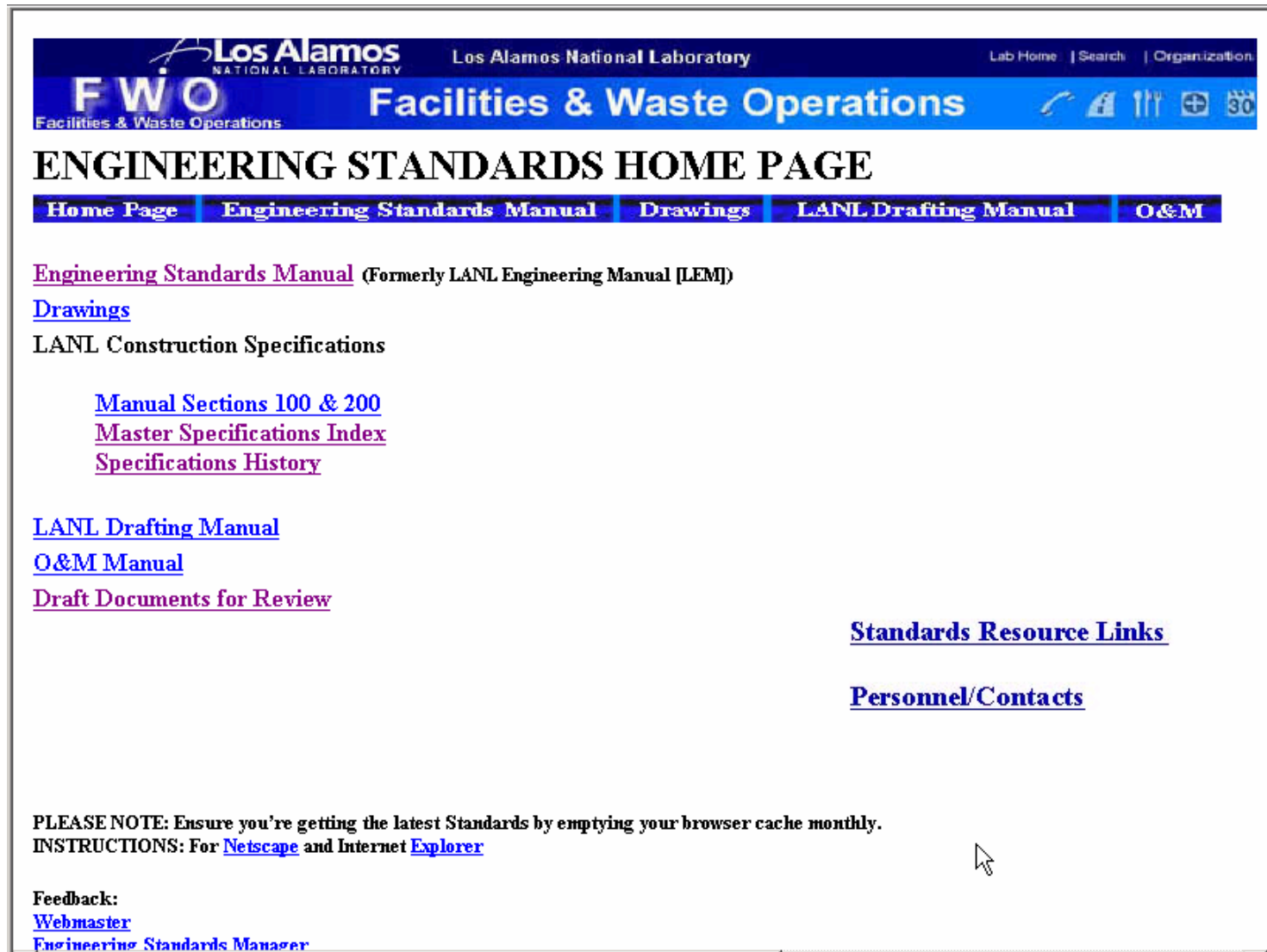
- **Engineering Standards Manual (ESM)**
 - Design criteria; covers all phases of design
 - Includes Standard Detail Drawings
- **Construction Specifications (LCSM)**
 - For detailed design and construction
 - 16 Divisions -- CSI MasterFormat
- **Drafting Manual (DM)**
 - Drafting requirements and guidance

Why do we need LANL Engineering Standards?

What Are Some of the Drivers?

- Implement codes and standards in UC contract
- Invoke recommended practice guidelines
- Accommodate environmental factors
- Promote maintenance considerations
- Capture experience and lessons learned
- Required by a Lab Implementation Requirement (LIR)

The Standards are online. Homepage (external/internal):
<http://www.lanl.gov/f6stds/pubf6stds/xternhome.html>



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F W O
Facilities & Waste Operations

ENGINEERING STANDARDS HOME PAGE

[Home Page](#) | [Engineering Standards Manual](#) | [Drawings](#) | [LANL Drafting Manual](#) | [O&M](#)

[Engineering Standards Manual](#) (Formerly LANL Engineering Manual [LEM])

[Drawings](#)

LANL Construction Specifications

[Manual Sections 100 & 200](#)

[Master Specifications Index](#)

[Specifications History](#)

[LANL Drafting Manual](#)

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[Draft Documents for Review](#)

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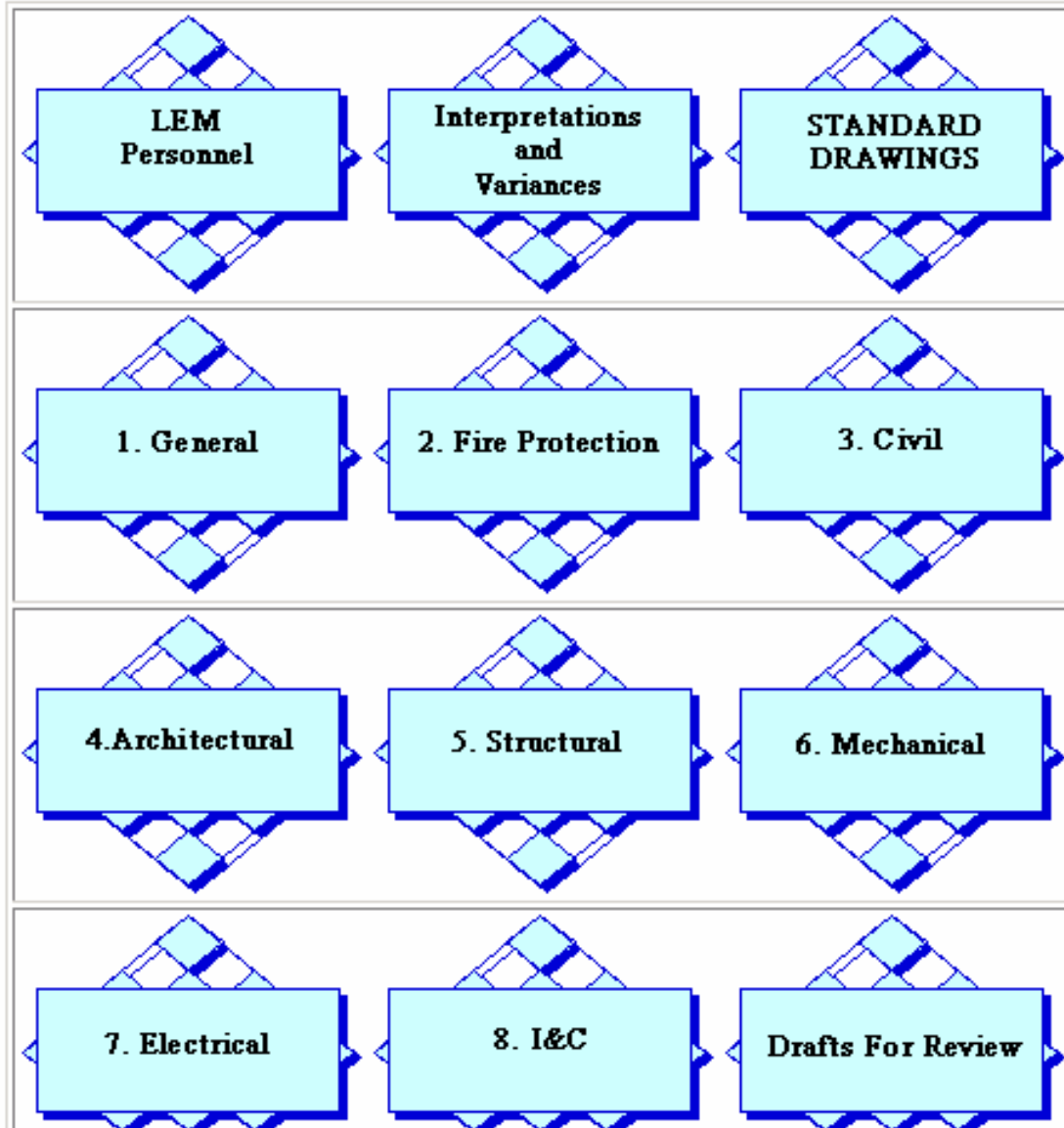
[Personnel/Contacts](#)

PLEASE NOTE: Ensure you're getting the latest Standards by emptying your browser cache monthly.
INSTRUCTIONS: For [Netscape](#) and Internet [Explorer](#)

Feedback:
[Webmaster](#)
[Engineering Standards Manager](#)

The Eng Standards Manual is by Discipline.

Webpage:



Contents of one ESM Section

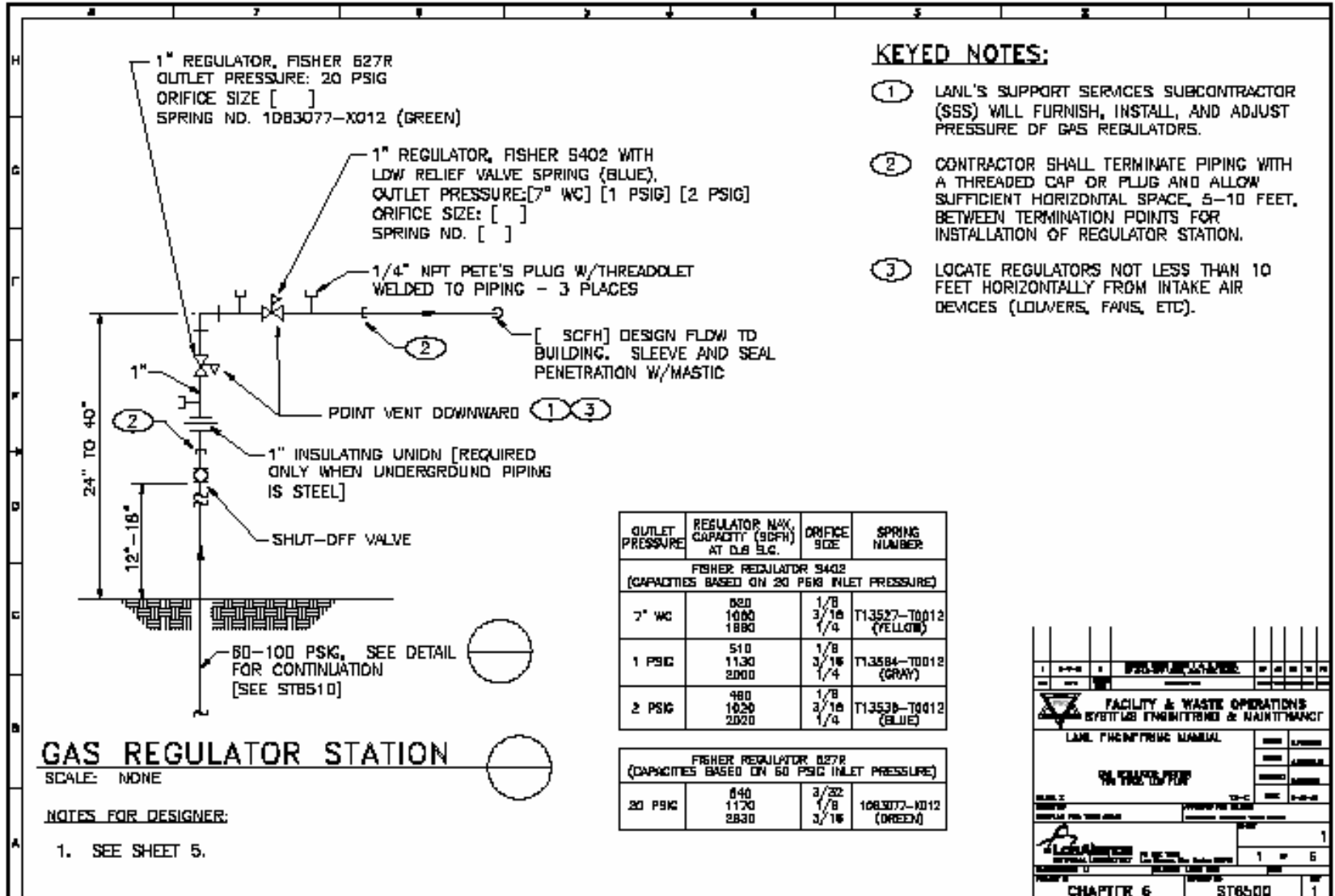
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Standard Detail Example

Designer can edit square bracketed parts, but can't change requirements without POC's OK



LANL Construction Specification Manual

Organized by the 16 CSI MasterFormat Divisions



01 - General



02 - Site Construction



03 - Concrete,
Admixtures & Finishing



04 - Masonry



05 - Metals



06 - Wood & Structural
Plastics



07 - Thermal & Moisture
Protection



08 - Doors & Windows



09 - Finishes



10 - Specialties



11 - Equipment & Design



12 - Furnishings



13 - Special Construction



14 - Conveying Systems



15 - Mechanical



16 - Electrical

Portion of a final/edited spec showing Parts 1 and 2.
Designer can edit square bracketed parts, but can't change requirements without POC's OK

SECTION 02270

SLOPE PROTECTION AND EROSION CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDE

- A. Straw Bales
- B. Silt fence
- C. Riprap
- D. Geocell grid

PART 2 PRODUCTS

2.1 MATERIALS

- A. Straw Bales
 - 1. Provide hay or straw bales free of noxious seeds, weeds, mold and rot.
 - 2. Provide nominal 18 inch by 18 inch by 36 inch long bales weighing between 65 and 80 pounds.

Drafting Manual Contents



- General Requirements
- Planning and Composition of Drawings
- Drafting Requirements
- Construction Drawings Title Blocks
- Title Sheets
- North Arrows
- Plan Orientation
- Partial Plans
- Submittal Sheets
- Drawing Scales
- Dimensioning
- Order of Disciplines
- Order of Drawings Within a Drawing Set and Within a Discipline
- Line Work
- Standardization of Text
- Sections, Elevations, Details and Callouts
- Electronic CAD File Conventions
- Drawing Symbols and Conventions

Clarifications, Variances, etc.

- **Clarify:** To make the ES or referenced code understandable and free from confusion.
- **Interpret:** To provide a formal acceptable method of compliance with the ES or referenced code.
- **Alternate Method:** A deviation from an ES or referenced code technical requirement that includes compensatory measures.
- **Variance:** A deviation from the explicit expectations in the ES or referenced code.
- **Exception:** Relief from all or a part of the requirements in the ES or referenced code.

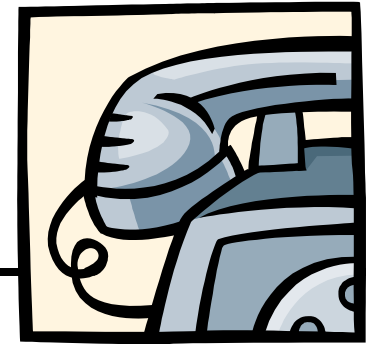
If you don't get clarification



“Suddenly, a heated exchange took place between the king and the moat contractor.”

Gary Larson

Contacts for LANL Standards



General

- Tobin Oruch, Eng Standards Manager, 665-8475, oruch@lanl.gov
- David Chavez, Standards Architect, 5-3927, dxchavez@lanl.gov

Discipline-Specific

- Discipline POCs -- listed throughout webpages
- Current POC on next slide

Drafting

- Richard Trout, POC, 5-1142, page 104-1139, trout@lanl.gov

POC Contact Info

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Structural	Mike Salmon, 5-7244, salmon@lanl.gov
Mechanical	Gurinder Grewal, 7-3667, grewal@lanl.gov
Electrical matters, safety	Electrical Safety Committee
Electrical, non-safety	David Powell, 7-3217, dpowell@lanl.gov
I&C	Mel Burnett, 7-1562, melb@lanl.gov
Security (future)	Cam Campbell 5-1467, ccam@lanl.gov (Acting POC)

Conclusion

- **Your** responsibilities
 - Follow the manuals verbatim or get relief (waiver)
 - Suggest manual improvements
- **Our** responsibilities
 - Do everything we can to help you get a good project result, and do your job well for LANL

